

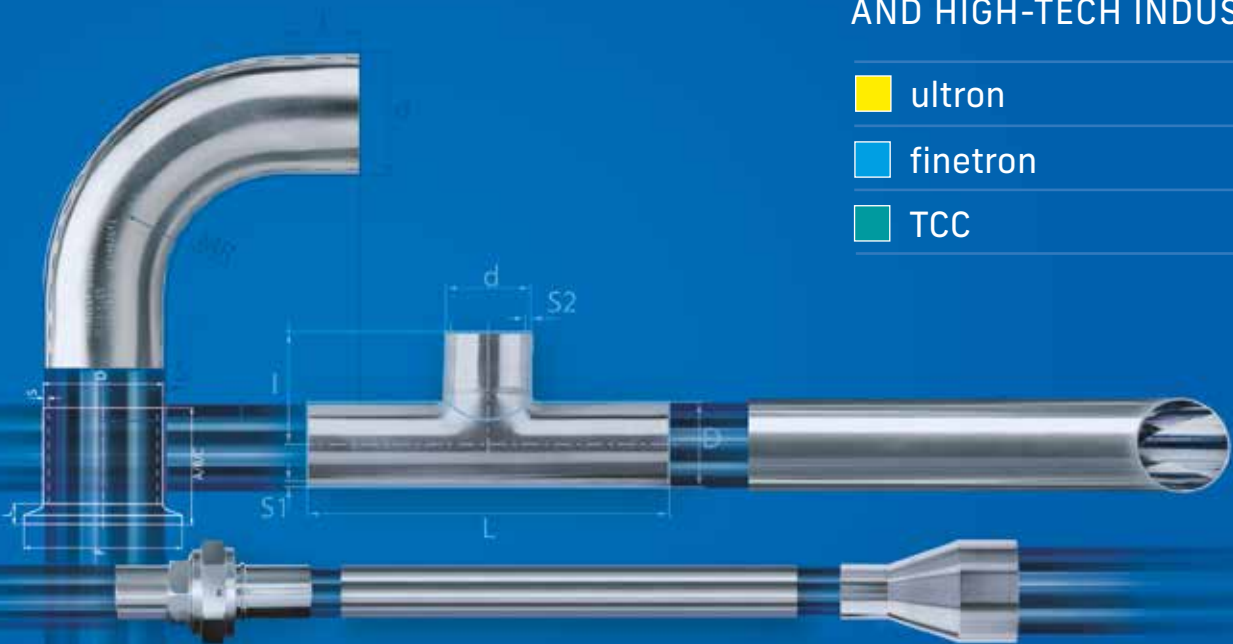
D-CKWEILER
connecting flow to **purity**

MICROELECTRONICS

TUBES, PIPES, FITTINGS AND CONNECTIONS

FOR SEMICONDUCTOR
AND HIGH-TECH INDUSTRIES

-  **ultron**
-  **finetron**
-  **TCC**



NORTH AMERICA

Specific inner surfaces
for safe installations.
Highest purity up to Ra 5 µm.



Dockweiler quality
from raw material to delivery.
All certificates are available on:
www.dockweiler.com

Consistent 3.1 certificates
with all important information.
End-to-end documentation
and traceability.



Engineered components
for enhanced efficiency.
Weld seams in perfection and
ultimate quality.

Disclaimer for contents: The contents of the catalog have been prepared with the greatest care. However, Dockweiler AG does not assume any liability for the correctness, completeness, reliability, usability and validity of the contents. The same applies to other Dockweiler companies that use this term. The respective customer is therefore obliged to check all contents in advance for their suitability for the intended use or to have them checked by a qualified professional.

CONTENTS	PAGE
Specifications	4
How-to-order	10
Tubes, Pipes, Fittings and Connections	12
Tubing	14
Coil-Tube	15
Elbow 45° WW	16
Elbow 90° WW	17
Tee Equal / Reducing	18
Concentric Reducer WW	20
Weld Cap	21
Removable Weld Cap (Dockweiler Cap)	22
ZeroCon	24
CleanShut	28
COAX Double Wall Tube System	30
Coaxial Tubing	32
Coaxial Tee / Coaxial Reducing Tee	34
Coaxial 45° Elbow	36
Coaxial 90° Elbow	37
Coaxial Weld Sleeve (Length: 4 inch / 3 inch)	38
Coaxial Terminator	39
Coaxial Purge Tee	40
Coaxial Bulkhead Purge Tee	41
Coaxial VCR Female / Coaxial VCR Male	42
Customized Solutions	44
Flextron	46
Process Vessels / Bubbler	48
Prefabricated Laterals / Manifolds	50
Dockweiler Group / Contacts	52

For UHP gas applications in semiconductor industry
and fine chemistry



ep electropolished
cleanroom cleaning and packing



1. SURFACES QUALITIES

Tubes and fittings:	Inner surface (ep)	Outer surface
ultron	Ra _{max.} ≤ 10 µin (0.25 µm)	Ra _{max.} ≤ 48 µin (1.2 µm)
ultron VIM-VAR	Ra _{max.} ≤ 10 µin (0.25 µm)	Ra _{max.} ≤ 48 µin (1.2 µm)
On request:	Ra _{max.} ≤ 5 µin (0.13 µm) Ra _{max.} ≤ 7 µin (0.18 µm) Ra _{max.} ≤ 20 µin (0.51 µm)	

Pipes:	Inner surface (ep)	Outer surface
ultron	Ra _{max.} ≤ 25 µin (0.64 µm)	Mill finish, RA not defined

Additional notes:	- Pipes and fittings will be supplied with a square cut. Different end preparations may be agreed on. - Other specified surfaces or ends are available upon request. - The Ra value in the cold worked area of fittings (inner and outer surface) and on the surface of circumferential welds is not defined. For dimensions OD < 1/4" (6.35 mm) roughness is not defined. - Free of oil and grease according to CGA G-4.1-2018 and ASTM G93 – level A. - Electropolishing procedure according to Dockweiler guideline Doc. 8.4-40/3.1/3.3.1 - Passivation acc. ASTM A380 and ASTM A 967 - Cleanroom cleaning and packing (Federal Class 10 / ISO Class 4)
-------------------	---

2. MATERIALS

ultron	1.4404 / UNS S31603 (316L), 1.4435 / UNS S31603 (316L), UNS S31603 (316L)
ultron VIM-VAR	UNS S31603 (316L) VIM-VAR double melted stainless steel according to ASTM A 269/A 632 for OD tubing (Imperial)

Hardness equivalent to:	- max. 180 HV* according to DIN EN ISO 6507-1 - max. 90 HRB* according to DIN EN ISO 6508-1 * comparable to ASTM E-384 (HV) and ASTM E 18-22 (HRB)
-------------------------	---

3. DIMENSIONS

Tubes and fittings:	Imperial according to ASTM A269 / A270 / A632	
OD x WT:	1/8" x 0.022" to 6" x 0.109"	3.18 x 0.56 mm to 152.4 x 2.77 mm
Length:	OD > 1/4": min. 19.36 ft to max. 19.98 ft (6000 mm -100/+90) OD < 1/4": min. 9.51 ft to max. 9.84 ft (2950 mm ± 50)	
Pipe:	Pipe according to ASTM A312	
Dimensions:	NPS 8, 10, 12 Schedule 10S	Length: min. 19.36 ft to max. 19.98 ft
Manufacturing process:	Seamless Tubes ≤ 1" OD (25.40 mm)	Welded tubes ≥ 1 1/2" OD (38.10 mm)

4. QUALITY AND TEST PROCEDURES

Verification of basic test certificate	Visual inspection	Endoscopic inspection of bright finished tubes
Verification of dimensions	Roughness measurements	Conductivity test (DI water)
TOC-measurement of DI water	Particle measurements	Scanning electron microscope (SEM)
XPS / ESCA	Auger analysis (AES)	

5. TECHNICAL TERMS OF DELIVERY

Tubes and fittings are prepared for orbital welding:

Tubes

According to ASTM A 632/ A 269 / A 312 (Pipe), DIN EN 10217-7 / 10216-5 with a length of 19.35 ft - 19.98 ft (5900 - 6090 mm), max. 10% short lengths of min. 9.84 ft (3000 mm). Tubes with an outside diameter of 5.00 mm or smaller are supplied with a length of 2950 mm (+/-50 mm).

Tube fitting components

Prematerial according to ASTM A 269 / A 632 / A 312 / A 403 (Pipe), DIN EN 10217-7 / 10216-5

Machined components

Prematerial according to ASTM A 479, DIN EN 10088-3, DIN 17440, ASTM A403 (Pipe)

Marking always with

DOCKWEILER / DW-Number / Dimension / Material / Heat number

Tube, pipe and fittings shall be permanently marked as per Dockweiler guideline AA 8.5.2-80. The marking must provide all necessary information to trace back the heat number and the material grade.

6. DOCUMENTATION, PACKAGING AND SHIPPING

The documentation result by the Dockweiler Inspection Certificate 3.1 according to DIN EN 10204.

Tubes and fittings filled with N2 (99.999% incl. inert gas), closed with PA/PE squares and yellow PE caps, double-bagged and sealed in PE-sleeves.

Delivery in tubular container or wooden crate, fittings in strong cardboard box with shock absorbing filler.

The batch label on the foil contains the information ultron.

For gas applications in semiconductor industry
as well as in photovoltaics







1. SURFACES QUALITIES

Tubes and fittings:	Inner surface (bf)	Outer surface
 finetron	Ra _{max.} ≤ 20 μin (0.51 μm)	Ra _{max.} ≤ 48 μin (1.2 μm)
Additional notes: - Pipes and fitting will be supplied with a square cut. Different end preparations may be agreed on. Other specified surfaces or ends are available upon request. - The Ra value in the cold worked area of fittings (inner and outer surface) and on the surface of circumferential welds is not defined. For dimensions OD < 1/4" (6.35 mm) roughness is not defined. - Bright finished Surface treatment: Cleaning and test procedure ASTM A 632, S3. - Free of oil and grease according to CGA G-4.1-2018 and ASTM G93 – level C.		

2. MATERIALS

 finetron	1.4404 / UNS S31603 (316L) 1.4435 / UNS S31603 (316L) UNS S31603 (316L)
Hardness equivalent to:	- max. 180 HV* according to DIN EN ISO 6507-1 - max. 90 HRB* according to DIN EN ISO 6508-1 * comparable to ASTM E-384 (HV) and ASTM E 18-22 (HRB)

3. DIMENSIONS

Imperial	according to ASTM A269 / A270 / A632	
OD x WT:	1/4" x 0.035" to 6" x 0.109"	6.35 x 0.89 mm to 152.4 x 2.77 mm
Length:	min. 19.36 ft to max. 19.98 ft	6000 mm -100/+90
Manufacturing process:	Seamless Tubes ≤ 1" OD (25.40 mm)	Welded tubes ≥ 1 1/2" OD (38.10 mm)

4. QUALITY AND TEST PROCEDURES

Verification of
basic test certificate

Visual inspection

Endoscopic inspection
of bright finished tubes

Verification of
dimensions

Roughness
measurements

5. TECHNICAL TERMS OF DELIVERY

Tubes and fittings are prepared for orbital welding according to the following standards:

Tubes

according to ASTM A 269/A 632/A 312 (Pipe), DIN EN 10217-7 / 10216-5 with a length of 19.35 ft - 19.98 ft (5900 - 6090 mm), max. 10% short lengths of min. 9.84 ft (3000 mm)

Tube fitting components

Prematerial according to ASTM A 269 / A 632 / A 312 / A 403 (Pipe), DIN EN 10217-7 / 10216-5

Machined components

Prematerial according to ASTM A 479, DIN EN 10088-3, DIN 17440, ASTM A 182 (Pipe)

Marking always with

DOCKWEILER / DW-Number / Dimension / Material / Heat number

Tubes are ink marked over the full length.
Fittings are needle or laser marked.

6. DOCUMENTATION, PACKAGING AND SHIPPING

The documentation result by the Dockweiler Inspection Certificate 3.1 according to DIN EN 10204.

Bright finished tubes and fittings are closed with opaque PE caps and are individually sealed in PE foil.
Delivery in tubular container or wooden crate, fittings in strong cardboard box with shock absorbing filler.
The batch label on the foil contains the information finetron.

Widely used in production, process measurement and photovoltaic

TCC

 **bright finished**





1. SURFACES QUALITIES

Tubes and fittings:	Inner surface	Outer surface
 TCC (bf)	Ra _{max.} ≤ 32 µin (0.8 µm)	Ra _{max.} ≤ 48 µin (1.2 µm)
Pipe and pipe fittings:	Inner surface	Outer surface
 TCC (bf)	Ra _{max.} ≤ 32 µin (0.8 µm)	Ra _{max.} ≤ 48 µin (1.2 µm)
Additional notes:	- Tubes and fittings are prepared for orbital welding. - Other specified surfaces or ends are available upon request. - Pipes and fitting will be supplied with a square cut. Different end preparations may be agreed on. - The Ra value in the cold worked area of fittings (inner and outer surface) and on the surface of circumferential welds is not defined. For dimensions OD ≤ 3/8" (5.00 mm) roughness is not measured. - Cleaning and test procedure ASTM A 632, S3 and ASTM G93 – level D.	

2. MATERIALS

	Austenitic stainless steel tubes and fittings (seamless or welded / depending on diameter) in:
 TCC / TCC.1	1.4435 / UNS S31603 (316L) 1.4404 / UNS S31603 (316L) UNS S31603 (316L) UNS S30403 (304L)
Hardness equivalent to:	- max. 180 HV* according to DIN EN ISO 6507-1 - max. 90 HRB* according to DIN EN ISO 6508-1 * comparable to ASTM E-384 (HV) and ASTM E 18-22 (HRB)

3. DIMENSIONS

Imperial:	according to ASTM A269 / A270 / A632	
OD x WT	1/8" x 0.022" to 6" x 0.109"	3.18 x 0.56 mm to 152.4 x 2.77 mm
Length	min. 19.36 ft to max. 19.98 ft (6000 mm -100/+90)	
Pipe:	according to ASTM A312	
Dimensions	NPS 8, 10, 12, 16, 20 Schedule 10S	219,08 x 3,76 mm to 508,00 x 5,54 mm
Length	min. 19.36 ft to max. 19.98 ft (6000 mm -100/+90)	
Manufacturing process:	Seamless tubes (≤ 1/2")	Welded or seamless tubes (> 1/2")

4. QUALITY AND TEST PROCEDURES

 Verification of basic test certificate

 Visual inspection

 Endoscopic inspection of bright finished tubes

 Verification of dimensions

 Roughness measurements

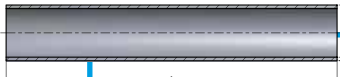
5. TECHNICAL TERMS OF DELIVERY

Tubes and fittings are prepared for orbital welding:	
Tubes	According to ASTM A 632 A 269/A 270, DIN EN 10217-7/ 10216-5 with a length of 5900 - 6090 mm (max. 10% short lengths of min. 3000 mm possible).
Fittings	According to DIN 11865, ASTM A 403 (Pipe), ASTM A 182 (Pipe)
Marking always with	DOCKWEILER / DW-Number / Dimension / Material / Heat number
Tube and fittings shall be permanently marked as per Dockweiler guideline AA 8.5.2-80. The marking must provide all necessary information to trace back the heat number and the material grade.	

6. DOCUMENTATION, PACKAGING AND SHIPPING

Documentation	The documentation result by the Dockweiler Inspection Certificate 3.1 according to DIN EN 10204. Optional online documentation WebCert.
Packaging	Bright finished tubes and fittings are sealed with white/ opaque PE caps and packaged in PE foil. The batch label contains the information TCC. Anodically cleaned tubes and fittings are sealed with PE/ PA squares and white/opaque PE caps and packed in PE foil. The batch label contains the information TCC.1.
Shipping	Delivery in tubular container or wooden crate, fittings in strong cardboard box with shock absorbing filler.

Dockweiler Order Code System:
Easy to select and combine



Order Code Selection for Tubes:

A. DOCKWEILER QUALITY

Code Quality	Specification	Material
U	ultron	316L (ep)
F	finetron	316L (bf)
T	TCC	316L/304L (bf)

B. BASIC CODE TYPE OF PRODUCT

Code Product	Description
CT	Coil Tube
E4	45° Elbow
E9	90° Elbow
TE	Tee Equal
RT	Reducing Tee
CR	Concentric Reducer
DC	Dockweiler Cap
WC	Weld Cap
Z	ZeroCon Connection
WFT	CleanShut Wall Feedthrough
CO	Coaxial Tube
CTE	Coaxial Tee Equal
CTR	Coaxial Reducing Tee
CE4	Coaxial 45° Elbow
CE9	Coaxial 90° Elbow
CS	Coaxial Sleeve
CTM	Coaxial Terminator
CPT	Coaxial Purge Tee
CBP	Coaxial Bulkhead Purge Tee
CFG	Coaxial VCR Female Gland
CMG	Coaxial VCR Male Gland

C. BASIC CODE OUTER DIAMETER

Code Diameter	Size (Inch)	Wall Thickness
02	1/8	0.022
04	1/4	0.035
06	3/8	0.035
08	1/2	0.049
10	5/8	0.049
12	3/4	0.065
16	1	0.065
24	1 1/2	0.065
32	2	0.065
40	2 1/2	0.065
48	3	0.065
64	4	0.083
96	6	0.109

Pipe Schedule 10S

96NPS	6	0.130
128NPS	8	0.148
160NPS	10	0.165
192NPS	12	0.180
224NPS	14	0.189
256NPS	16	0.189
288NPS	18	0.189
320NPS	20	0.218

D. QUALITY ADD-ON

Code add-on	add-on for
V	vim var

Order Code Selection for Fittings:

Sample: ultron Tube 1 Inch

Combine: A - C

Order Code: U - 16

Sample: ultron VIMVAR Tube 1 Inch

Combine: A - C - add-on

Order Code: U - 16 - V

Sample: finetron Elbow 45° 1 1/2 Inch

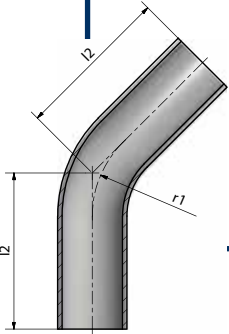
Combine: A - B - C

Order Code: F - E4 - 08

Sample: ultron VIMVAR Elbow 45° 1 1/2 Inch

Combine: A - B - C - D

Order Code: U - E4 - 08 - V



10

dockweiler.com | Microelectronics | US 04-2025

dockweiler.com | Microelectronics | US 04-2025

11

Dockweiler Tube Systems: Tubes and Orbital Weld Fittings

For the highest requirements for surfaces, purity and corrosion resistance. Our tubes and fittings meet the highest demands for applications in microelectronics or in other high-tech industries.



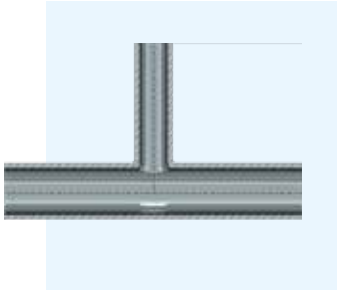
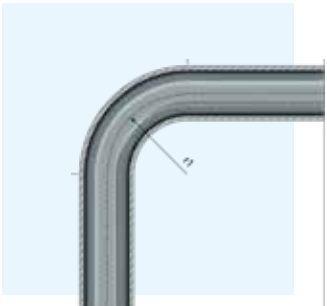
45° Elbow

Page 14



90° Elbow

Page 15



T-Pieces
Equal and
Reduced

Page 16

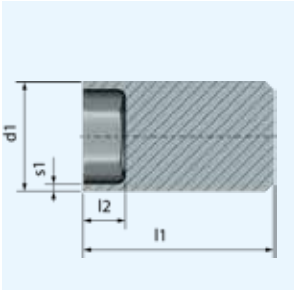


Concentric
Reducer

Page 18

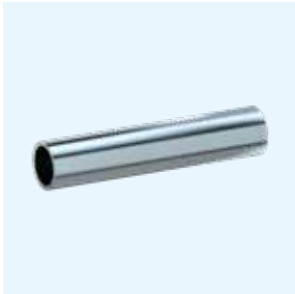
Weld Cap

Page 19



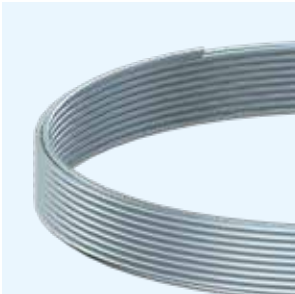
Dockweiler
Cap

Page 20



Imperial Tubes
and Pipes

Page 12



Coil Tube

Page 13



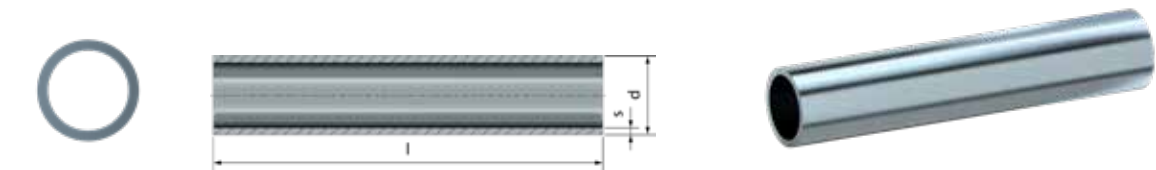
ZeroCon
Connection

Page 22



CleanShut
Feedthrough

Page 26



Imperial						
Nominal Size d	Wall Thickness s	Weight	ultron	finetron	TCC	Product Code ^B + Diameter ^C
Inch	Inch	lbs/ft				
1/8	0.022	0.0247	U		T	- 02
1/4	0.035	0.0833	U	F	T	- 04
3/8	0.035	0.1321	U	F	T	- 06
1/2	0.049	0.2359	U	F	T	- 08
3/4	0.065	0.4836	U	F	T	- 12
1	0.065	0.6601	U	F	T	- 16
1 1/2	0.065	1.0131	U	F	T	- 24
2	0.065	1.3661	U	F	T	- 32
2 1/2	0.065	1.7192	U	F	T	- 40
3	0.065	2.0722	U	F	T	- 48
4	0.083	3.5363	U	F	T	- 64
6	0.109	6.9823	U	F	T	- 96

PIPE NPS Schedule 10S						
Nominal Size d	Wall Thickness s	Weight	ultron	finetron	TCC	Product Code ^B + Diameter ^C
NPS	Inch	lbs/ft				
6*	0.130		U		T	- 96NPS
8	0.150	13.6208	U		T	- 128NPS
10	0.160	18.9562	U		T	- 160NPS
12	0.180	24.5537	U		T	- 192NPS
16	0.190	32.3015			T	- 256NPS
20	0.220	47.0042			T	- 320NPS

* optional / on demand

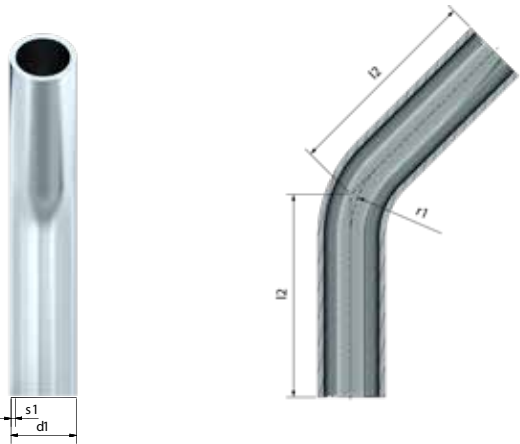
Further dimesions on request.

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C (+ add-on for VimVar)



Imperial						
Nominal Size d	Wall Thickness s	Weight	ultron	finetron		Product Code ^B + Diameter ^C
Inch	Inch	lbs/ft				
1/8	0.022	0.0811		F	-	CT-02
1/4	0.035	0.2736	U	F	-	CT-04
3/8	0.035	0.4334	U	F	-	CT-06
1/2	0.049	0.7740	U	F	-	CT-08

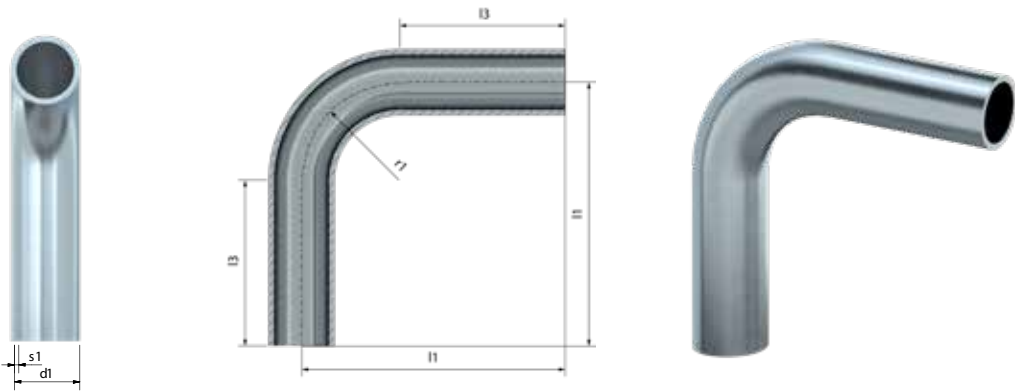
For Order Code please combine:
Product Quality - Basic Code



Nominal Size	Wall Thickness	Length	Radius	ultron	finetron	TCC	Product Code ^B + Diameter ^C	vim var add-on
d1	s1	l2	r1					
Inch		Inch		316 L				
1/4	0.035	2.000	0.563	U	F	T	- E4-04	- V
3/8	0.035	2.000	1.126	U	F	T	- E4-06	- V
1/2	0.049	2.252	1.063	U	F	T	- E4-08	- V
3/4	0.065	2.252	1.126	U	F	T	- E4-12	
1	0.065	2.252	1.500	U	F	T	- E4-16	
1 1/2	0.065	2.500	2.252	U	F	T	- E4-24	
2	0.065	3.000	3.000	U	F	T	- E4-32	
2 1/2	0.065	3.374	6.000	U	F	T	- E4-40	
3	0.065	3.626	3.752	U	F	T	- E4-48	
4	0.083	4.500	4.500	U	F	T	- E4-64	
6	0.109	6.252	6.000	U	F	T	- E4-96	

Further dimesions on request.

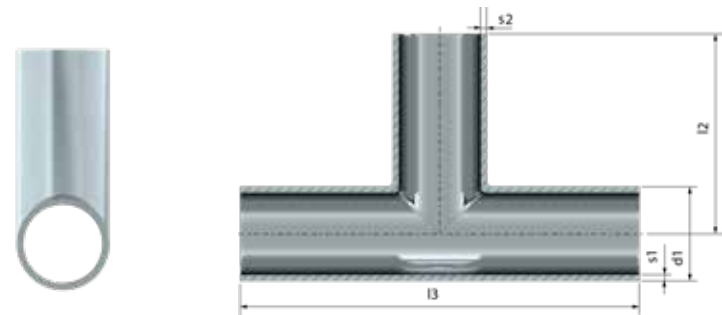
For Order Code please combine:
Quality^A- Product Code^B + Diameter^C (+ add-on for VimVar)



Nominal Size	Wall Thickness	Length	Length	Radius	ultron	finetron	TCC	Product Code ^B + Diameter ^C	vim var add-on
d1	s1	l1	l3	r1					
Inch		Inch			316 L				
1/4	0.035	2.626	2.063	0.563	U	F	T	- E9-04	V
3/8	0.035	2.626	1.500	1.126	U	F	T	- E9-06	- V
1/2	0.049	3.000	1.937	1.063	U	F	T	- E9-08	- V
3/4	0.065	3.000	1.874	1.126	U	F	T	- E9-12	- V
1	0.065	3.000	1.500	1.500	U	F	T	- E9-16	
1 1/2	0.065	3.752	1.500	2.252	U	F	T	- E9-24	
2	0.065	4.752	1.752	3.000	U	F	T	- E9-32	
2 1/2	0.065	5.500	1.748	3.752	U	F	T	- E9-40	
3	0.065	6.252	1.752	4.500	U	F	T	- E9-48	
4	0.083	8.000	2.000	6.000	U	F	T	- E9-64	
6	0.109	11.500	2.500	9.000	U	F	T	- E9-96	

Further dimesions on request.

For Order Code please combine:
Quality^A- Product Code^B + Diameter^C (+ add-on for VimVar)



Imperial		Wall Thickness		Length		ultron	finetron	TCC	Product Code ^B + Diameter ^C	vim var add-on
d1 x d2		s1	s2	l3	l2					
Inch				Inch		316L				
1/4 x 1/4		0.035	0.035	3.504	1.752	U	F	T	- TE-04	V
3/8 x 1/4		0.035	0.035	3.504	1.752	U	F	T	- TR-06-04	V
3/8 x 3/8		0.035	0.035	3.504	1.752	U	F	T	- TE-06	V
1/2 x 1/4		0.049	0.035	3.748	1.874	U	F	T	- TR-08-04	V
1/2 x 3/8		0.049	0.035	3.748	1.874	U	F	T	- TR-08-06	V
1/2 x 1/2		0.049	0.049	3.748	1.874	U	F	T	- TE-08	V
3/4 x 1/4		0.065	0.035	4.252	2.000	U	F	T	- TR-12-04	↑
3/4 x 3/8		0.065	0.035	4.252	2.000	U	F	T	- TR-12-06	
3/4 x 1/2		0.065	0.049	4.252	2.000	U	F	T	- TR-12-08	
3/4 x 3/4		0.065	0.065	4.252	2.000	U	F	T	- TE-12	
1 x 1/4		0.065	0.035	4.252	2.126	U	F	T	- TR-16-04	
1 x 3/8		0.065	0.035	4.252	2.126	U	F	T	- TR-16-06	↑
1 x 1/2		0.065	0.049	4.252	2.126	U	F	T	- TR-16-08	
1 x 3/4		0.065	0.065	4.252	2.126	U	F	T	- TR-16-12	
1 x 1		0.065	0.065	4.252	2.126	U	F	T	- TE-16	

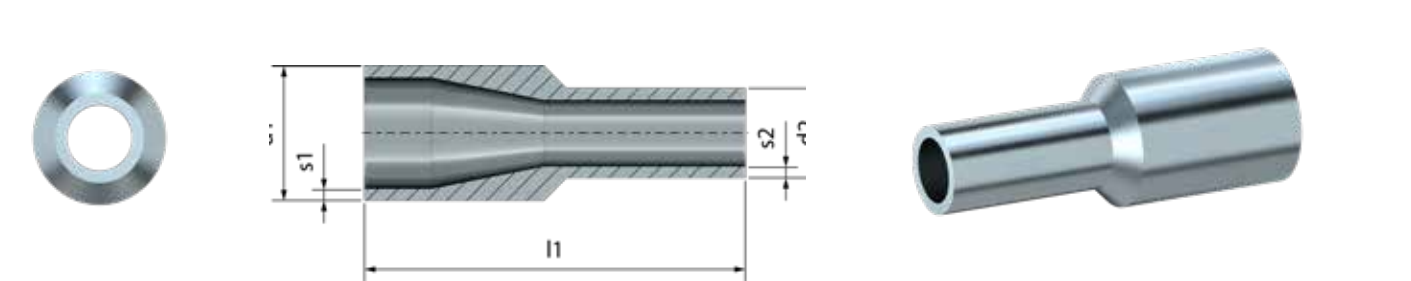
Further dimesions on request.

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C (+ add-on for VimVar)

Imperial	Wall Thickness		Length		ultron	ultron vim var	finetron	Product Code ^B + Diameter ^C	
d1 x d2	s1	s2	l3	l2					
Inch			Inch		316L				
1 1/2 x 1/2	0.065	0.049	4.748	2.374	U	F	T	-	TR-24-08
1 1/2 x 3/4	0.065	0.065	4.748	2.374	U	F	T	-	TR-24-12
1 1/2 x 1	0.065	0.065	4.748	2.374	U	F	T	-	TR-24-16
1 1/2 x 1 1/2	0.065	0.065	4.748	2.374	U	F	T	-	TE-24
2 x 1/2	0.065	0.049	5.748	2.626	U	F	T	-	TR-32-08
2 x 3/4	0.065	0.065	5.748	2.626	U	F	T	-	TR-32-12
2 x 1	0.065	0.065	5.748	2.626	U	F	T	-	TR-32-16
2 x 1 1/2	0.065	0.065	5.748	2.626	U	F	T	-	TR-32-24
2 x 2	0.065	0.065	5.748	2.874	U	F	T	-	TE-32
2 1/2 x 1/2	0.065	0.049	6.252	2.874	U	F	T	-	TR-40-08
2 1/2 x 3/4	0.065	0.065	6.252	2.874	U	F	T	-	TR-40-12
2 1/2 x 1	0.065	0.065	6.252	2.874	U	F	T	-	TR-40-16
2 1/2 x 1 1/2	0.065	0.065	6.252	2.874	U	F	T	-	TR-40-24
2 1/2 x 2	0.065	0.065	6.252	2.874	U	F	T	-	TR-40-32
2 1/2 x 2 1/2	0.065	0.065	6.252	3.126	U	F	T	-	TE-40
3 x 1/2	0.065	0.049	6.752	3.126	U	F	T	-	TR-48-08
3 x 3/4	0.065	0.065	6.752	3.126	U	F	T	-	TR-48-12
3 x 1	0.065	0.065	6.752	3.126	U	F	T	-	TR-48-16
3 x 1 1/2	0.065	0.065	6.752	3.126	U	F	T	-	TR-48-24
3 x 2	0.065	0.065	6.752	3.126	U	F	T	-	TR-48-32
3 x 2 1/2	0.065	0.065	6.752	3.126	U	F	T	-	TR-48-40
3 x 3	0.065	0.065	6.752	3.374	U	F	T	-	TE-48
4 x 1/2	0.083	0.049	8.252	3.626	U	F	T	-	TR-64-08
4 x 3/4	0.083	0.065	8.252	3.626	U	F	T	-	TR-64-12
4 x 1	0.083	0.065	8.252	3.626	U	F	T	-	TR-64-16
4 x 1 1/2	0.083	0.065	8.252	3.626	U	F	T	-	TR-64-24
4 x 2	0.083	0.065	8.252	3.874	U	F	T	-	TR-64-32
4 x 2 1/2	0.083	0.065	8.252	3.874	U	F	T	-	TR-64-40
4 x 3	0.083	0.065	8.252	3.874	U	F	T	-	TR-64-48
4 x 4	0.083	0.083	8.252	4.126	U	F	T	-	TE-64
6 x 4	0.109	0.083	11.252	5.126	U	F	T	-	TR-96-64
6 x 6	0.109	0.109	11.252	5.626	U	F	T	-	TE-96

Further dimesions on request.

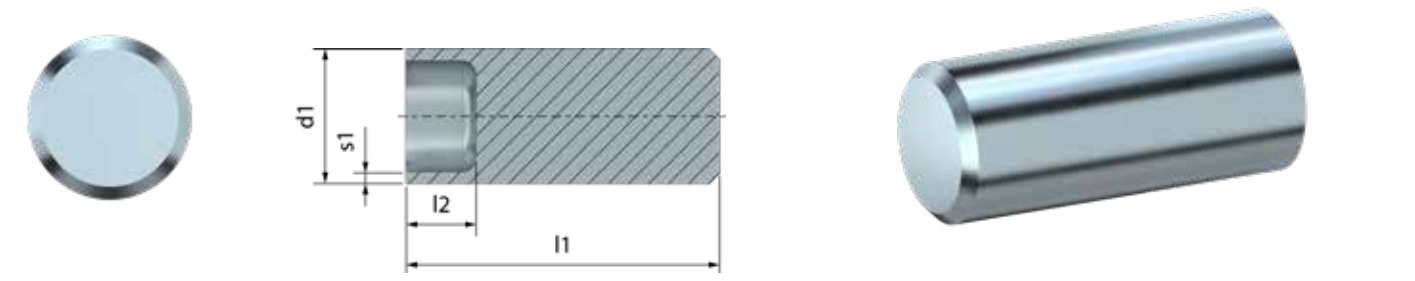
For Order Code please combine:
Quality^A - Product Code^B + Diameter^C



Imperial				ultron	finetron	TCC	Product Code ^B + Diameter ^C	
d1 x d2	s1	s2	l3					
Inch	Inch			316L				
3/8 x 1/4	0.035	0.035	1.625	U	F	T	-	RC-06-04
1/2 x 1/4	0.049	0.035	1.496	U	F	T	-	RC-08-04
1/2 x 3/8	0.049	0.035	1.496	U	F	T	-	RC-08-06
3/4 x 1/4	0.065	0.035	1.496	U	F	T	-	RC-12-04
3/4 x 3/8	0.065	0.035	2.000	U	F	T	-	RC-12-06
3/4 x 1/2	0.065	0.049	2.362	U	F	T	-	RC-12-08
1 x 1/2	0.065	0.049	2.362	U	F	T	-	RC-16-08
1 x 3/4	0.065	0.065	2.125	U	F	T	-	RC-16-12
1 1/2 x 1/2	0.065	0.049	3.150	U	F	T	-	RC-24-08
1 1/2 x 3/4	0.065	0.065	3.000	U	F	T	-	RC-24-12
1 1/2 x 1	0.065	0.065	2.500	U	F	T	-	RC-24-16
2 x 1	0.065	0.065	3.375	U	F	T	-	RC-32-16
2 x 1 1/2	0.065	0.065	2.500	U	F	T	-	RC-32-24
2 1/2 x 1	0.065	0.065	3.937	U	F	T	-	RC-40-16
2 1/2 x 1 1/2	0.065	0.065	3.375	U	F	T	-	RC-40-24
2 1/2 x 2	0.065	0.065	2.500	U	F	T	-	RC-40-32
3 x 1 1/2	0.065	0.065	4.250	U	F	T	-	RC-48-24
3 x 2	0.065	0.065	3.375	U	F	T	-	RC-48-32
3 x 2 1/2	0.065	0.065	2.625	U	F	T	-	RC-48-40
4 x 2	0.083	0.065	5.125	U	F	T	-	RC-64-32
4 x 2 1/2	0.083	0.065	4.250	U	F	T	-	RC-64-40
4 x 3	0.083	0.065	3.875	U	F	T	-	RC-64-48
6 x 3	0.109	0.065	7.250	U	F	T	-	RC-96-48
6 x 4	0.109	0.083	5.625	U	F	T	-	RC-96-64

Further dimensions on request.

For Order Code please combine:
Quality^A- Product Code^B + Diameter^C

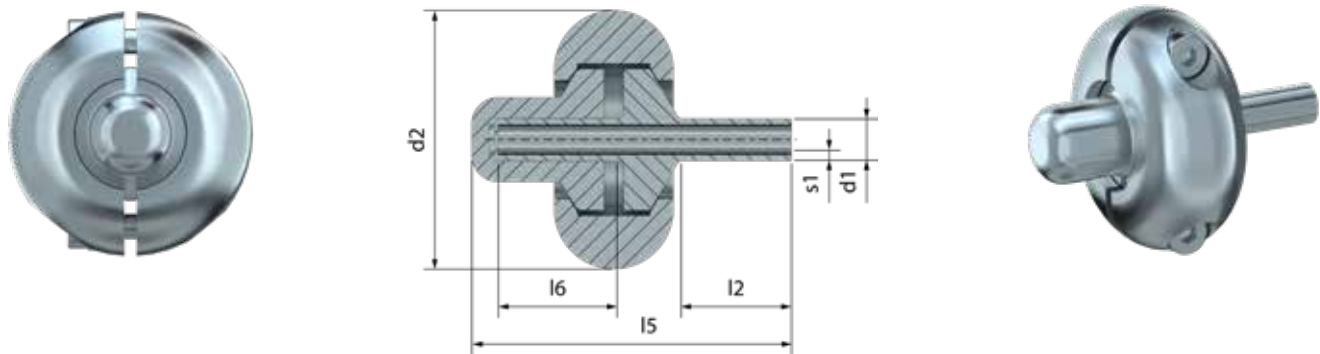


Imperial				ultron	finetron	TCC	Product Code ^B + Diameter ^C	
d1	s1	l1	l2					
Inch		Inch		316L				
1/4	0.035	1.368	0.197	U	F	T	-	WC-04
3/8	0.035	1.750	0.197	U	F	T	-	WC-06
1/2	0.049	1.750	0.197	U	F	T	-	WC-08
3/4	0.065	1.750	0.394	U	F	T	-	WC-12
1	0.065	1.750	0.394	U	F	T	-	WC-16
1 1/2	0.065	2.000	0.394	U	F	T	-	WC-24
2	0.065	2.000	0.591	U	F	T	-	WC-32
2 1/2	0.065	2.000	0.591	U	F	T	-	WC-40
3	0.065	2.000	0.591	U	F	T	-	WC-48
4*	0.083	2.500	0.886	U	F	T	-	WC-64
6*	0.109	7.874*	5.906	U	F	T	-	WC-96

Further dimensions on request.

* Differing design: not machined but formed end welded to tube stub

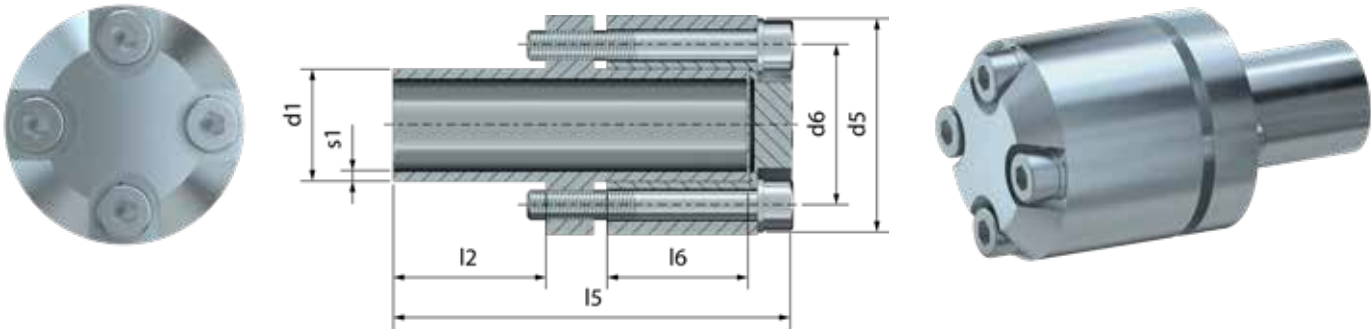
For Order Code please combine:
Quality^A- Product Code^B + Diameter^C



Imperial

d1	s1	l2	l5	d5	d6	l6	ultron	Product Code ^B + Diameter ^C
Inch				Inch			316L	
1/4	A	0.035	0.750	1.910	1.540	-	1.050	U - DC-04

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C

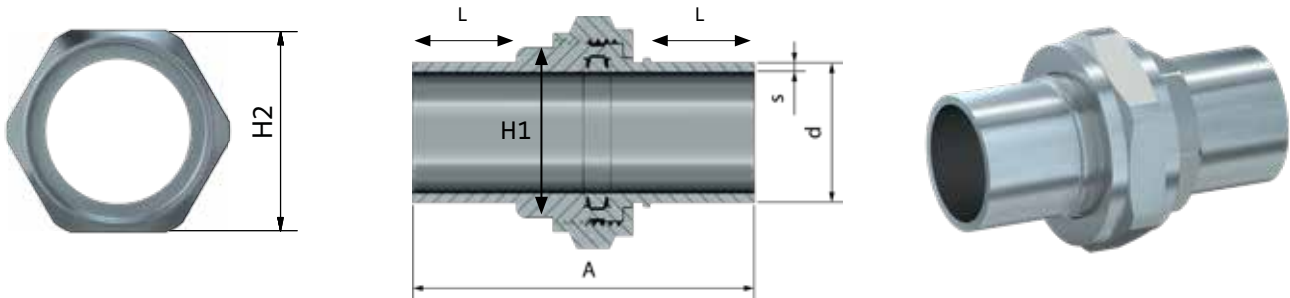


Imperial

d1	s1	l2	l5	d5	d6	l6	ultron	Product Code ^B + Diameter ^C
Inch				Inch			316L	
1/2	B	1.020	2.620	1.070	-	1.020	1.020	U - DC-08
3/4	B	1.020	2.650	1.460	1.060	1.020	1.020	U - DC-12
1	B	1.020	2.690	1.710	1.310	1.020	1.020	U - DC-16
1 1/2	B	1.180	3.040	2.280	1.850	1.180	1.180	U - DC-24
2	B	1.770	4.300	2.780	2.350	1.770	1.770	U - DC-32
2 1/2	B	1.770	4.340	3.280	2.850	1.770	1.770	U - DC-40
3	B	1.770	4.380	3.780	3.350	1.770	1.770	U - DC-48
4	B	2.170	5.210	4.780	4.350	2.170	2.170	U - DC-64
6	B	2.170	5.290	6.780	6.350	2.170	2.170	U - DC-96

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C

Complete Kit



Please note: The **system size** for the screwed ZeroCon kit is always based on the **number for the gasket** and the **number for the connecting nut**



Dimensions	d	s	A	L	H1	H2	ultron	finetron	Product Code ^B + Diameter ^C
System	Inch				Inch		316L		
20-1	1/4	0.035	2.453	0.748	7/16"	3/4"	U	F	- Z-SK-04
40-2	3/8	0.035	2.453	0.748	9/16"	15/16"	U	F	- Z-SK-06
60-3	1/2	0.049	2.453	0.748	5/8"	1 1/16"	U	F	- Z-SK-08
90-4	3/4	0.065	2.453	0.748	7/8"	1 1/4"	U	F	- Z-SK-12
130-5	1	0.065	2.453	0.748	1 1/16"	1 1/2"	U	F	- Z-SK-16

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C

Gaskets	Tube (d)	ultron	finetron	Product Code ^B + Diameter ^C
System	Inch	316L		
20	1/4	U	F	- Z-SR-04
40	3/8	U	F	- Z-SR-06
60	1/2	U	F	- Z-SR-08
90	3/4	U	F	- Z-SR-12
130	1	U	F	- Z-SR-16

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C

The ZeroCon Kit consists of:

- Pressure joint (1x)
- Screw joint (1x)
- Metal gasket (1x)
- Nut (1x)
- Assembly instruction

Please follow the assembly instructions for the correct use of the tool. The instruction is part of the ZeroCon kit.

The ZeroCon Disassembly Tool

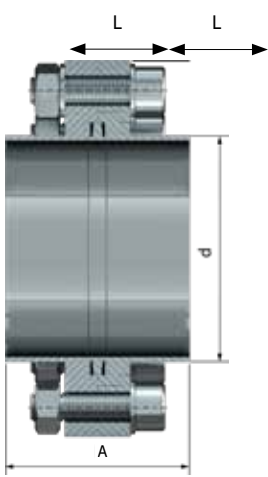
Order Code: Z-SDT



Nuts	Tube (d)	Nut (d)	ultron	finetron	Product Code ^B + Diameter ^C
System	Inch	Inch	316L		
1	1/4	6.350	F	-	Z-N-04
2	3/8	9.530	F	-	Z-N-06
3	1/2	12.700	F	-	Z-N-08
4	3/4	19.050	F	-	Z-N-12
5	1	25.400	F	-	Z-N-16

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C

Complete Kit

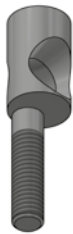


Dimensions				Wrench Size			ultron	finetron	Product Code ^B + Diameter ^C
d	s	A	L	Screw Set	H1	H2			
Inch							316L		
1	0.065	2.283	0.787	1F	10 (3/8")	5 (3/16")	U	F	- Z-FK-16
1 1/2	0.065	2.441	0.787	2F	13 (1/2")	6 (7/32")	U	F	- Z-FK-24
2	0.065	2.441	0.787	2F	13 (1/2")	6 (7/32")	U	F	- Z-FK-32
3	0.065	2.441	0.787	3F	16 (5/8")	8 (5/16")	U	F	- Z-FK-48
4	0.083	2.441	0.787	4F	16 (5/8")	8 (5/16")	U	F	- Z-FK-64

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C

- The ZeroCon Kit consists of:
- Fixed flange (1x)
 - Rotatable flange (1x)
 - Metal gasket (1x)
 - Screw set (1x)
 - Assembly instruction

Please follow the assembly instructions for the correct use of the tool. The instruction is part of the ZeroCon kit.



Disassembly Tool	Dimensions of Screws	Order Code
System	Bolt / mm	
1F	M6 x 30	Z-FDT-M6
2F	M8 x 35	Z-FDT-M8
3F	M10 x 35	Z-FDT-M10
4F	M10 x 35	Z-FDT-M10

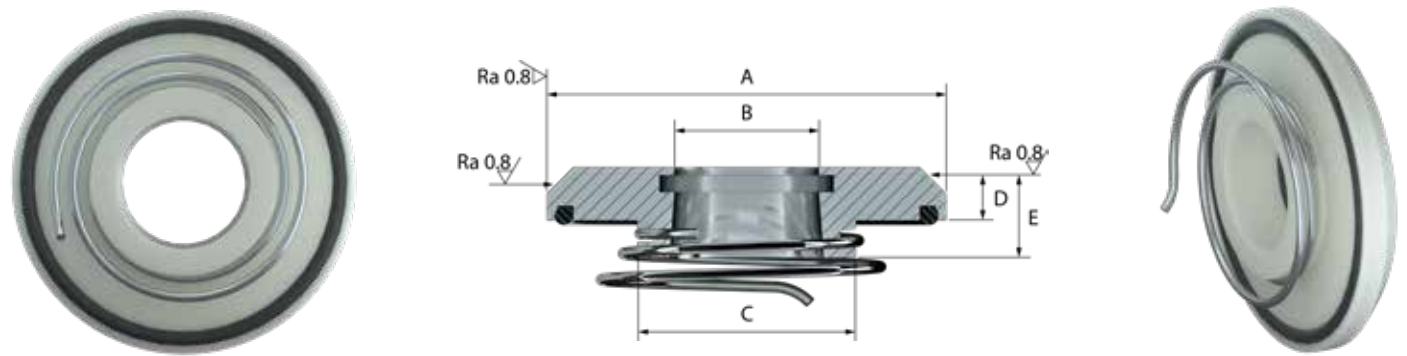


Gaskets	Inch	ultron	finetron	Product Code ^B + Diameter ^C
		316L		
1		U	F	- Z-SR-16
1 1/2		U	F	- Z-SR-24
2		U	F	- Z-SR-32
3"		U	F	- Z-SR-48
4"		U	F	- Z-SR-64

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C

Screw Set	Dimensions of Screws		Amount of Screws	Lock washer	ultron	finetron	Product Code ^B + Diameter ^C
System	Bolt / mm	Nut / mm					
					316L		
1F	M6 x 30	M6 x 1	6	SWS-M6		F	- Z-SN-M6
2F	M8 x 35	M8 x 1	8	SWS-M8		F	- Z-SN-M8
3F	M10 x 35	M10 x 1	8	SWS-M10		F	- Z-SN-M10-8
4F	M10 x 35	M10 x 1	10	SWS-M10		F	- Z-SN-M10-10

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C



Imperial		Clean Shut Dimensions					Order Code				
Tube Dimensions	Cover width	Tube Feedthrough	Wall Feedthrough	Thickness	Length						
	Ø A	Ø B	Ø C	D	E						
	Inch	Inch									
1/2	2.520	0.508	1.339	0.394	0.709	WFT	-	08	-	PV	
3/4	2.953	0.758	1.772	0.394	0.709	WFT	-	12	-	PV	
1	2.953	1.008	1.772	0.394	0.709	WFT	-	16	-	PV	
1 1/2	4.134	1.508	2.953	0.394	0.787	WFT	-	24	-	PV	
2	4.134	2.008	2.953	0.394	0.787	WFT	-	32	-	PV	
2 1/2	5.433	2.508	4.252	0.394	0.866	WFT	-	40	-	PV	
3	5.433	3.008	4.252	0.394	0.866	WFT	-	48	-	PV	
4	5.866	4.008	5.000	0.394	0.866	WFT	-	64	-	PV	

Further dimesions on request.

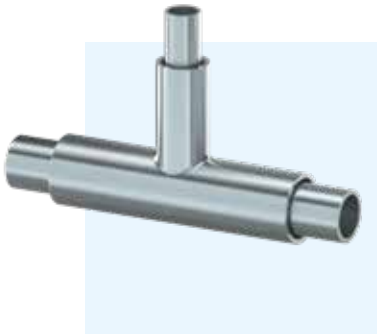
COAX – The Coaxial Tube System

COAX double wall tube system is a safe solution for transport of explosive, toxic, corrosive, or highly viscous media. COAX tubes and fittings consist of an inner process tube and an outer safety tube. Spacers on the inside ensure safe flow.



Coaxial
Tubing

Page 30



Coaxial Tee /
Reducing Tee

Page 32



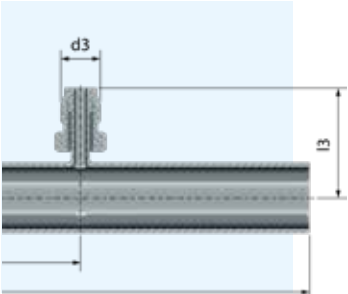
Coaxial
Weld Sleeve

Page 36



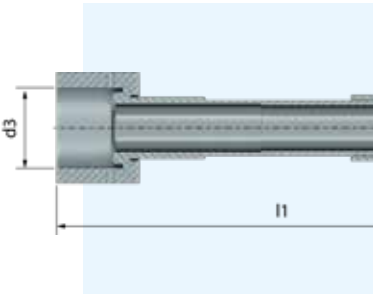
Coaxial
Purge Tee

Page 38



Coaxial Bulk-
head Purge
Tees

Page 39



Coaxial
VCR® Female
Gland

Page 40



Coaxial
VCR® Male
Gland

Page 41

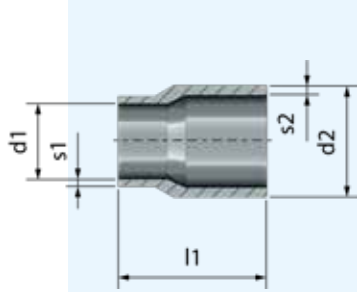
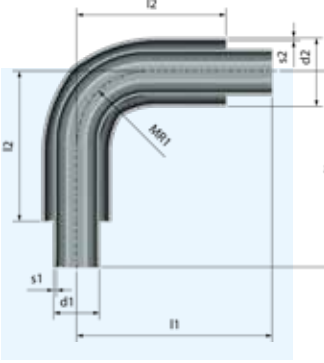
Coaxial
45° Elbow

Page 34



Coaxial
90° Elbow

Page 35



Coaxial
Terminator

Page 37



Imperial

Inner Tube		Outer Tube		ultron ■	Product Code ^B + Diameter ^C	
d1	s1	d2	s2			
Inch				316L		
1/4	0.035	1/2	0.049	U	-	CO-04
3/8	0.035	5/8	0.049	U	-	CO-06
1/2	0.049	3/4	0.065	U	-	CO-08
3/4	0.065	1	0.065	U	-	CO-12
1	0.065	1 1/2	0.065	U	-	CO-16

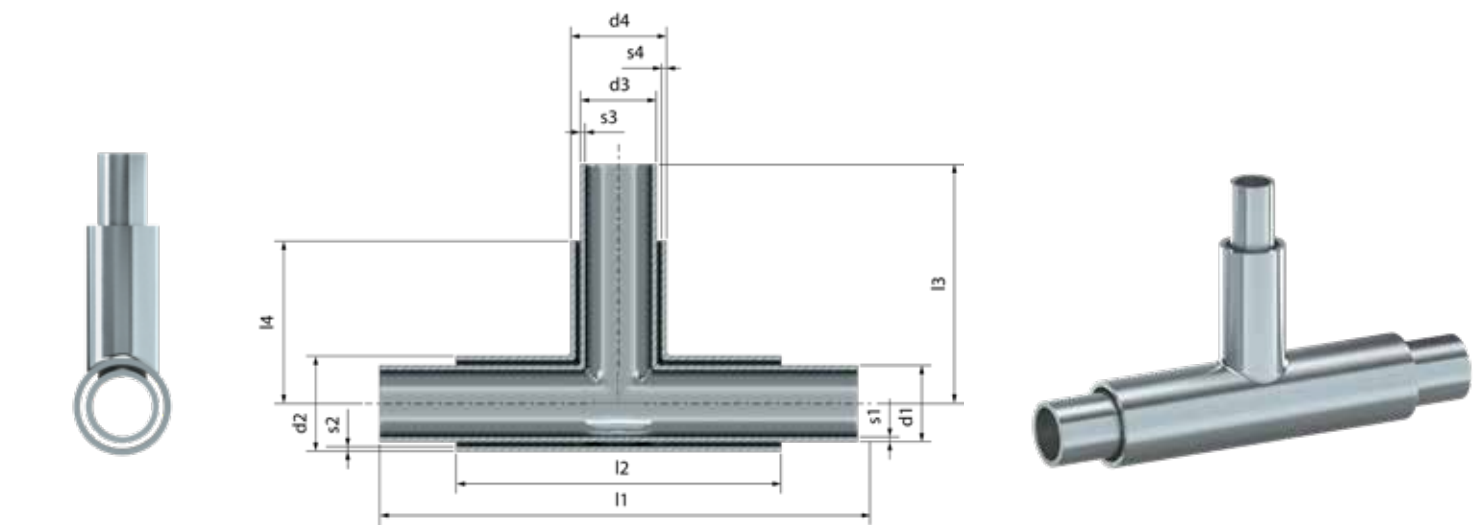
^{1) 2)} Inner tube always 316L (ep), outer tube 316L or 304L (bf).

Coaxial tube represented using inner tube dimensions.

Further dimensions on request.

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C



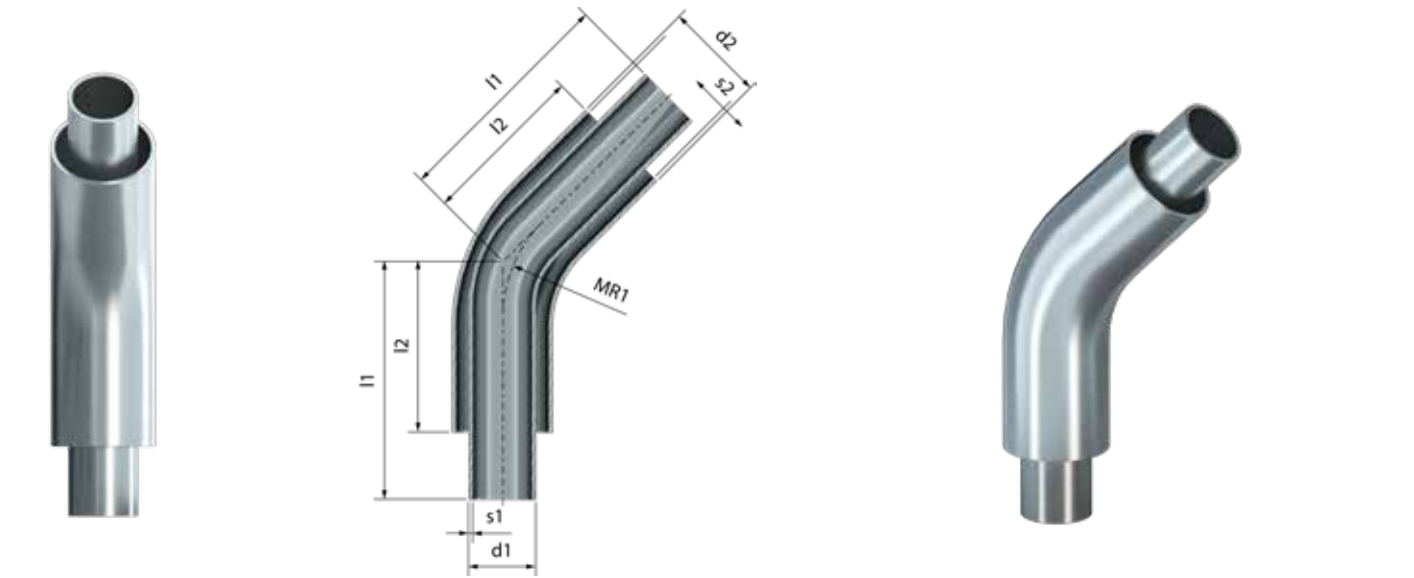


Imperial	Inner Tube				Outer Tube				Main Tube				Branch		ultron	Product Code ^B + Diameter ^C
	Main Tube		Branch		Main Tube		Branch		Inner Tube	Outer Tube	Outer Tube	Inner Tube				
	d1	s1	d3	s3	d2	s2	d4	s4	l1	l2	l3	l4				
Inch	Inch								Inch				316L			
1/4 x 1/4	0.250	0.035	0.250	0.035	0.500	0.049	0.500	0.049	5.000	3.500	2.500	1.750	U	CTE-04		
3/8 x 1/4	0.375	0.035	0.250	0.035	0.625	0.049	0.500	0.049	5.000	3.500	2.500	1.750	U	CTR-06-04		
3/8 x 3/8	0.375	0.035	0.375	0.035	0.625	0.049	0.625	0.049	5.000	3.500	2.500	1.750	U	CTE-06		
1/2 x 1/4	0.500	0.049	0.250	0.049	0.750	0.065	0.500	0.049	5.250	3.750	2.625	1.875	U	CTR-08-04		
1/2 x 3/8	0.500	0.049	0.375	0.049	0.750	0.065	0.625	0.049	5.250	3.750	2.625	1.875	U	CTR-08-06		
1/2 x 1/2	0.500	0.049	0.500	0.049	0.750	0.065	0.750	0.065	5.250	3.750	2.625	1.875	U	CTE-08		
3/4 x 1/4	0.750	0.065	0.250	0.065	1.000	0.065	0.500	0.049	5.250	3.750	2.625	1.875	U	CTR-12-04		
3/4 x 3/8	0.750	0.065	0.375	0.065	1.000	0.065	0.625	0.049	5.250	3.750	2.625	1.875	U	CTR-12-06		
3/4 x 1/2	0.750	0.065	0.500	0.065	1.000	0.065	0.750	0.065	5.250	3.750	2.625	1.875	U	CTR-12-08		
3/4 x 3/4	0.750	0.065	0.750	0.065	1.000	0.065	1.000	0.065	5.250	3.750	2.625	1.875	U	CTE-12		
1 x 1/4	1.000	0.065	0.250	0.065	1.500	0.065	0.500	0.049	6.250	4.250	3.125	2.125	U	CTR-16-04		
1 x 3/8	1.000	0.065	0.375	0.065	1.500	0.065	0.625	0.049	6.250	4.250	3.125	2.125	U	CTR-16-06		
1 x 1/2	1.000	0.065	0.500	0.065	1.500	0.065	0.750	0.065	6.250	4.250	3.125	2.125	U	CTR-16-08		
1 x 3/4	1.000	0.065	0.750	0.065	1.500	0.065	1.000	0.065	6.250	4.250	3.125	2.125	U	CTR-16-12		
1 x 1	1.000	0.065	1.000	0.065	1.500	0.065	1.500	0.065	6.250	4.250	3.125	2.125	U	CTE-16		

Coaxial tube represented using inner tube dimensions.
Standard is inner tube ultron, outer tube TCC.

Further dimensions and qualities on request.

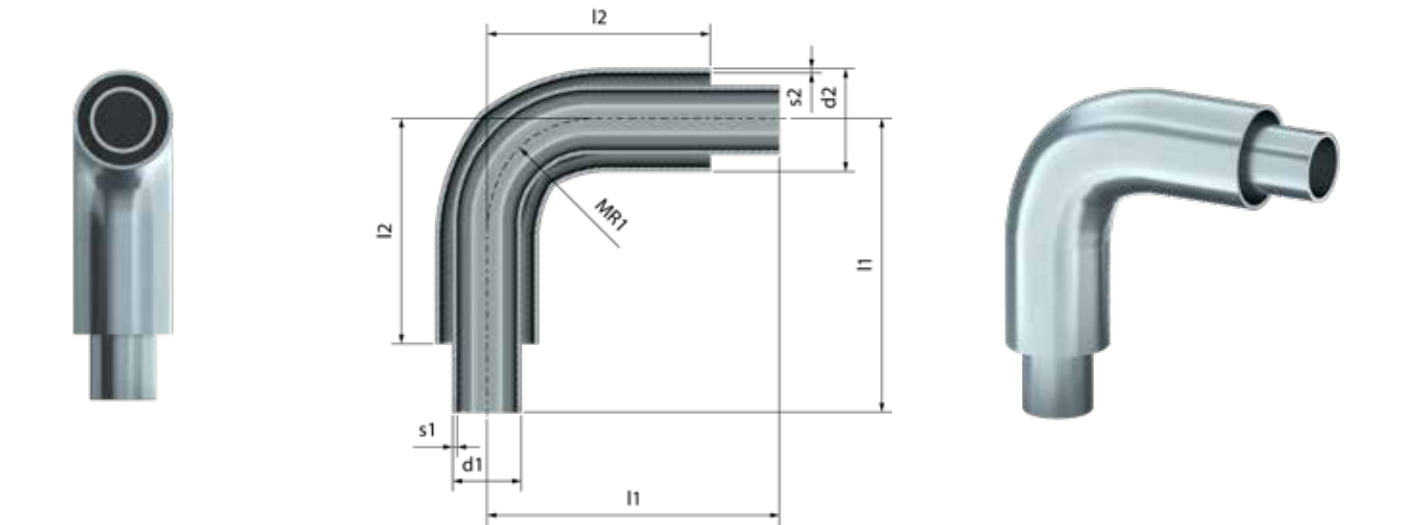
For Order Code please combine:
Quality^A- Product Code^B + Diameter^C



Imperial							ultron	Product Code ^B + Diameter ^C			
Inner Tube		Dimmensions			Outer Tube						Radius
d1	s1	l1	d2	s2	l2	MR1					
Inch				Inch		Inch	316 L				
1/4	0.035	3.876	0.500	0.049	3.126	1.500	U	-	CE4-04 bent		
3/8	0.035	3.876	0.625	0.049	3.126	2.244	U	-	CE4-06 bent		
1/2	0.049	4.302	0.750	0.065	3.552	3.346	U	-	CE4-08 bent		
3/4	0.065	5.339	1.000	0.065	4.339	3.346	U	-	CE4-12 bent		
1	0.065	3.500	1.500	0.065	2.500	1.500	U	-	CE4-16 welded		

Coaxial tube represented using inner tube dimensions.
Standard is inner tube UL, outer tube TC.
Further dimensions and qualities on request.

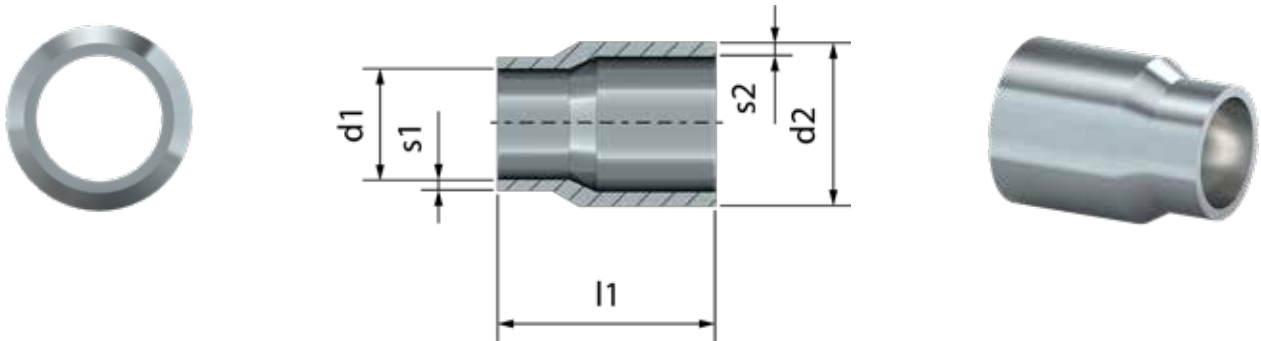
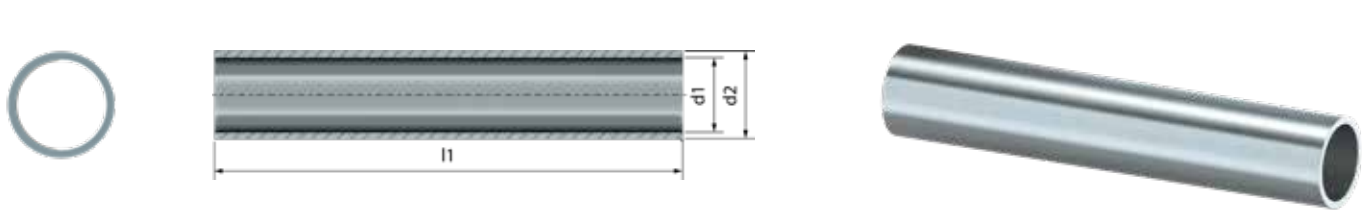
For Order Code please combine:
Quality^A - Product Code^B + Diameter^C



Imperial							ultron	Product Code ^B + Diameter ^C	
Inner Tube		Dimmensions			Outer Tube	Radius			
d1	s1	l1	d2	s2	l2	MR1			
Inch				Inch		Inch	316 L		
1/4	0.035	4.752	0.500	0.049	4.002	1.500	U	-	CE9-04 bent
3/8	0.035	5.146	0.625	0.049	4.396	2.244	U	-	CE9-06 bent
1/2	0.049	7.260	0.750	0.065	6.510	3.346	U	-	CE9-08 bent
3/4	0.065	7.510	1.000	0.065	6.510	3.346	U	-	CE9-12 bent
1	0.065	4.251	1.500	0.065	3.251	1.500	U	-	CE9-16 welded

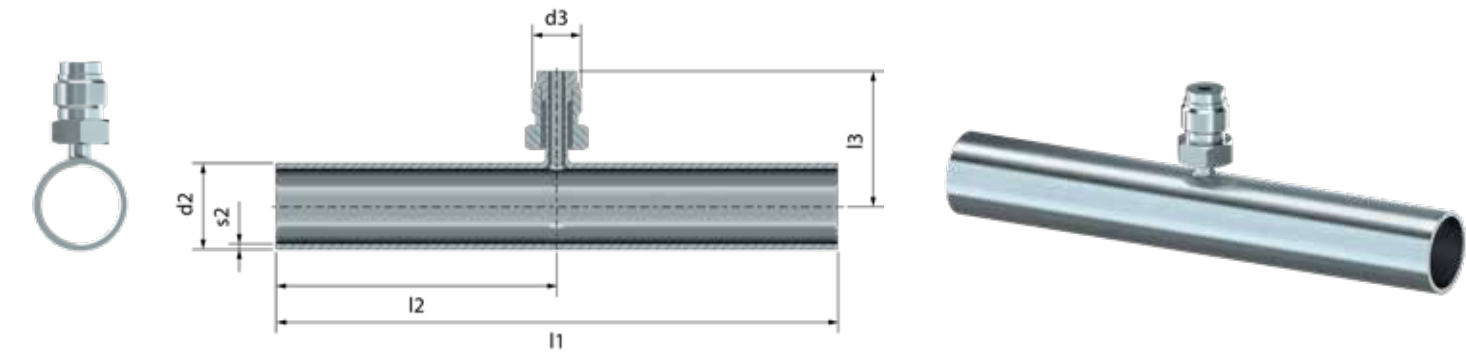
Coaxial tube represented using inner tube dimensions.
Standard is inner tube UL, outer tube TC.
Further dimensions and qualities on request.

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C



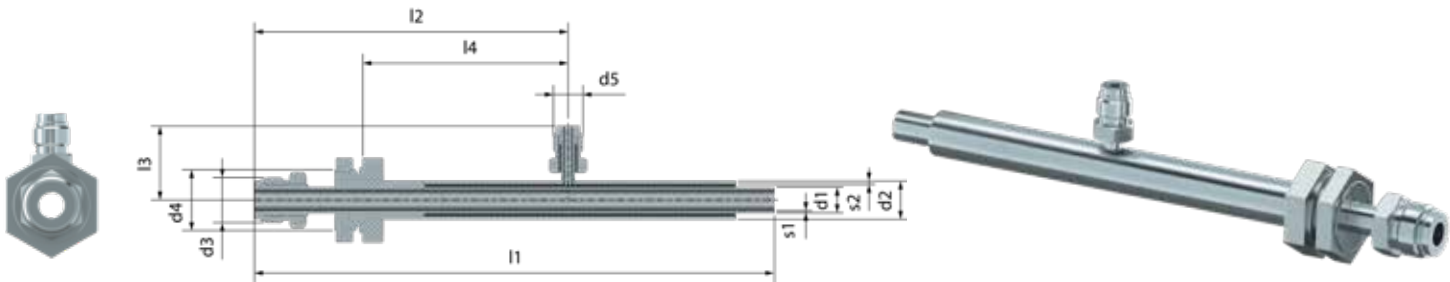
Imperial	For outer tube d	Sleeve			TCC	Product Code ^B + Diameter ^C	
		d1	d2	l1			
Inch	Inch	Inch					
1/4	1/2	0.508	0.625	4.000	T	-	CS-04
3/8	5/8	0.634	0.750	4.000	T	-	CS-06
1/2	3/4	0.760	0.875	4.000	T	-	CS-08
3/4	1	1.008	1.181	4.000	T	-	CS-12
1	1 1/2	1.512	1.669	4.000	T	-	CS-16
For Order Code please combine: Quality ^A - Product Code ^B + Diameter ^C							

Imperial	Terminator			TCC	Product Code ^B + Diameter ^C	
	d1	d2	l1			
Inch						
1/4	0.250	0.500	1.000	T	-	CTM-04
3/8	0.375	0.625	1.000	T	-	CTM-06
1/2	0.500	0.750	1.000	T	-	CTM-08
3/4	0.750	1.000	1.250	T	-	CTM-12
1	1.000	1.500	1.250	T	-	CTM-16
For Order Code please combine: Quality ^A - Product Code ^B + Diameter ^C						



Nominal Size			Length			VCR®	TCC	Product Code ^B + Diameter ^C	
d1	d2	s2	l1	l2	l3	d3		-	
Inch			Inch			Inch			
1/4"	0.500	0.049	5.748	2.874	1.311	1/4	T	-	CPT-04
3/8"	0.625	0.049	6.000	3.000	1.370	1/4	T	-	CPT-06
1/2"	0.750	0.065	6.000	3.000	1.433	1/4	T	-	CPT-08
3/4"	1.000	0.065	6.500	3.250	1.559	1/4	T	-	CPT-12
1"	1.500	0.065	6.500	3.250	1.805	1/4	T	-	CPT-16

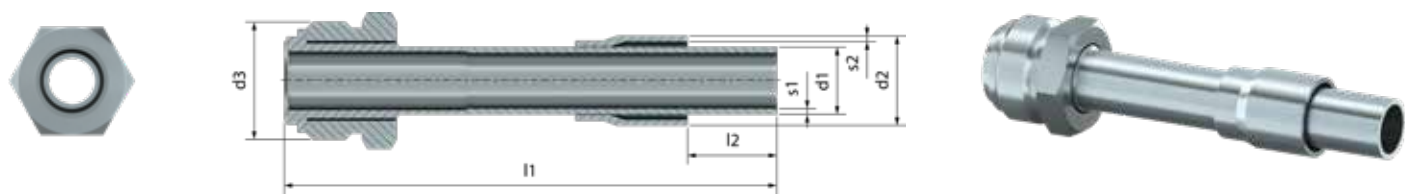
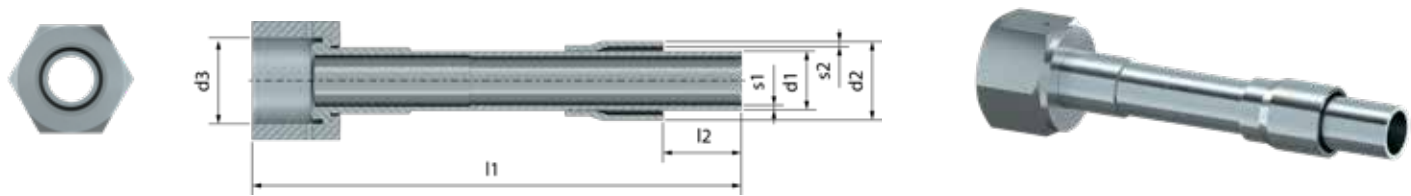
For Order Code please combine:
Quality^A - Product Code^B + Diameter^C



Nominal Size				Length				Main tube	Branch		Straight thread	ultron	Product Code ^B + Diameter ^C		
d1	s1	d2	s2	l1	l2	l3	l4	VCR® Size	VCR® Tube Size	VCR® Size	Size		-		
								d3	d5		d4				
				Inch				Inch				Wall aperture	316 L		
1/4	0.035	0.500	0.049	9.563	5.689	1.305	2.165	1/4	1/4	1/4	M20 x 1.5	U	-	CBP-04	
3/8	0.035	0.625	0.049	10.087	6.087	1.370	2.102	1/4	1/4	1/4	M30 x 2	U	-	CBP-06	
1/2	0.049	0.750	0.065	10.087	6.087	1.433	2.102	1/4	1/4	1/4	M30 x 2	U	-	CBP-08	

For Order Code please combine:

Quality^A - Product Code^B + Diameter^C



VCR® Size							ultron	Product Code ^B + Diameter ^C
d1	s1	d2	s2	l1	l2	d3		
Inch						Inch	316 L	
1/4	0.035	0.500	0.049	3.500	0.750	1/4	U	CFG-04
3/8	0.035	0.625	0.049	3.500	0.750	1/2	U	CFG-06
1/2	0.049	0.750	0.065	3.500	0.750	1/2	U	CFG-08
3/4	0.065	1.000	0.065	5.500	1.000	3/4	U	CFG-12
1	0.065	1.500	0.065	5.500	1.000	1	U	CFG-16

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C

Further dimensions on request.

VCR® Size							ultron	Product Code ^B + Diameter ^C
d1	s1	d2	s2	l1	l2	d3		
Inch						Inch	316 L	
1/4	0.035	0.500	0.049	3.500	0.750	1/4	U	CMG-04
3/8	0.035	0.625	0.049	3.500	0.750	1/2	U	CMG-06
1/2	0.049	0.750	0.065	3.500	0.750	1/2	U	CMG-08
3/4	0.065	1.000	0.065	5.500	1.000	3/4	U	CMG-12
1	0.065	1.500	0.065	5.500	1.000	1	U	CMG-16

For Order Code please combine:
Quality^A - Product Code^B + Diameter^C

Further dimensions on request.

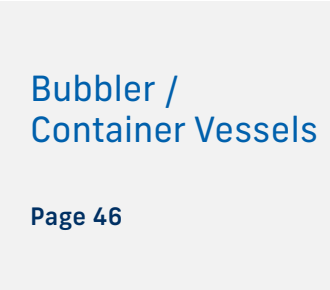
Optimized designs, the purest surfaces, perfected welds

When it comes to implementing complex components and systems Dockweiler is your manufacturing specialist. Maximizing productivity is the primary goal. This requires a highly reliable and efficient solution. The focus here is on low dead space and surface optimization.



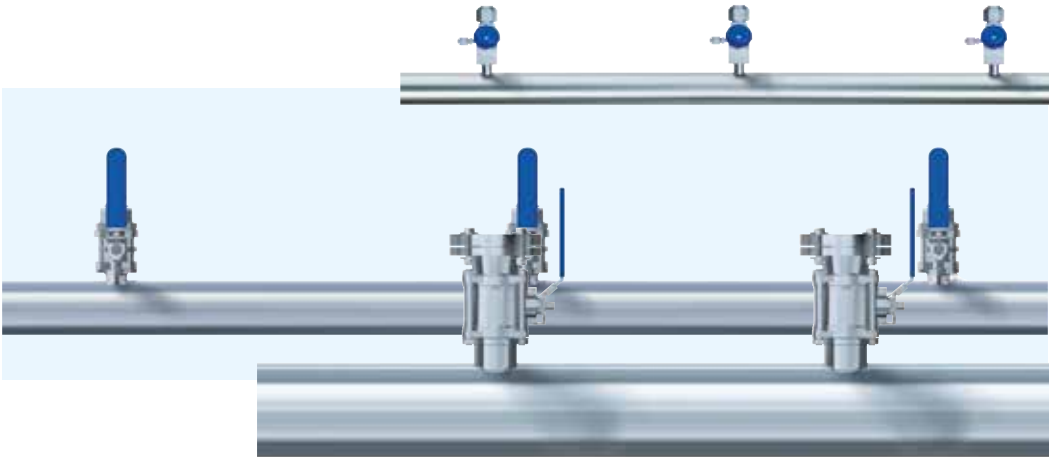
Flextron
Corrugated
Hoses

Page 44



Bubbler /
Container Vessels

Page 46



Prefabricated
Laterals

Page 48

FLEXTRON – THE “FLEXIBLE” STAINLESS STEEL TUBE

Flextron is manufactured from mechanically corrugated stainless steel (1.4404), as standard. An additional braid of stainless steel wire ensures a higher pressure resistance and protects the hose from damage. The unique combination of an electropolished surface and a flexible corrugated hose minimizes the risk of contamination and enables gas transport under full UHP conditions throughout the system. With Flextron, oscillations and vibrations can be decoupled and done to the highest purity standards.



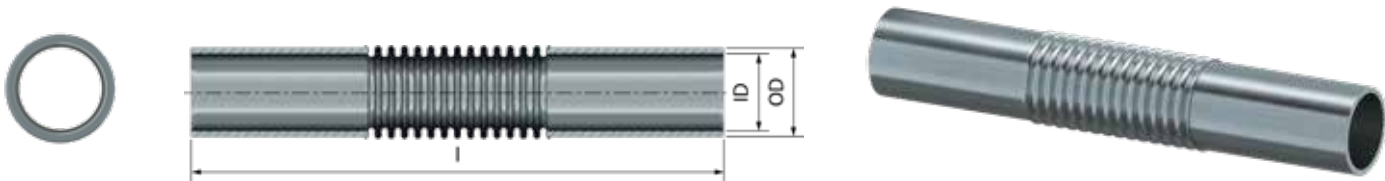
Flextron DN6 with VCR® connection



Flextron DN6 with optional wire braiding and welding ends



Flextron DN8 with ZeroCon connection



Features	Variants
Material	1.4404 UNS S31603 (316L)
System lengths (including welding ends)	6", 12", 24" and 36" (up to 60" on request)
Hose diameter	DN 6, DN 10 and DN 20
Hose couplings	1/4", 3/8", 1/2", 3/4", 1"
Surface treatment	Electropolished
	Ra ≤ 24 µin (0.60 µm) i/d Surface Valley
	Ra ≤ 16 µin (0.40 µm) i/d Surface Peak
Connections	Welding ends
	VCR®
	ZeroCon
	KF- / CF flanges and others on request
Wire braiding (optional)	1.4301 UNS S30403 (304L)

Imperial	Type	OD / AD	ID	Minimum Bending radius static ¹	Bending radius dynamic ¹	Pressure rating ¹	Weight	Flextron
Inch			Inch			[psig]	[lb/ft]	
1/4	not braided	0.4	0.2	1	5.5	261	0.08	U
	braided	0.5	0.2	1	5.5	1,160	0.16	U
3/8	not braided	0.4	0.2	1	5.5	261	0.08	U
	braided	0.5	0.2	1	5.5	1,160	0.16	U
1/2	not braided	0.56	0.4	1.5	7.5	116	0.07	U
	braided	0.6	0.4	1.5	7.5	1,160	0.16	U
3/4	not braided	1	0.8	2.8	11.2	44	0.18	U
	braided	1.1	0.8	2.8	11.2	653	0.33	U
1	not braided	1	0.8	2.8	11.22	44	0.18	U
	braided	1.1	0.8	2.8	11.22	653	0.33	U

¹ Tested according ISO 10380 at room Temperature (20°C)

PROCESS VESSELS (BUBBLER)
FOR ORGANOMETALLIC COMPOUNDS

Dockweiler process vessels guarantee safety when feeding ultra-pure media to critical manufacturing steps such as metal organic vapor phase epitaxy (MOVPE). In addition they offer a plus in safety due to their absolute tightness (helium leakage rate $\leq 4.0 \times 10^{-9}$ mbar l s⁻¹) and robust design.

HPL SERIES

The Dockweiler HPL series stands out from the competition by offering the most efficient utilization of the medium (e.g. trimethylgallium/TMG) .

Electropolishable orbital welding seams, optimal vessel size and shape and the elimination of dead space ensure the highest level of saturation of the carrier gas.



HPS SERIES

With the patented HPS solids bubbler, Dockweiler has developed a completely new bubbler design.

To ensure continuous saturation of the carrier gas with the filling medium, the HPS bubbler has a patented chamber system through which the flow of carrier gas is channeled.



ECO SERIES

The Dockweiler ECO series offers a variant of the HPL bubbler designed for the evaporation of liquids.

Dockweiler has systematically standardized the components used to offer an inexpensive alternative to the HPL bubbler.



OPTIONS

Dockweiler's HPL and HPS series bubblers can be customized with a wide range of options to create the ideal match for your application.

- Valves 1**
- We use Ham-Let 90° monolever rotating diaphragm valves as standard for our bubblers. Valves from the following manufacturers are also optionally available: Swagelok, Carten Controls, Parker and other valves on request.
- Crossover Function 2**
- The crossover function is a purging option with no dead space for eliminating oxygen from the system (including the inlet and outlet valves) during filling on the chemical manufacturer's premises or while the bubbler is connected to a process. It thus offers a simple, efficient solution for cleaning the gas path.



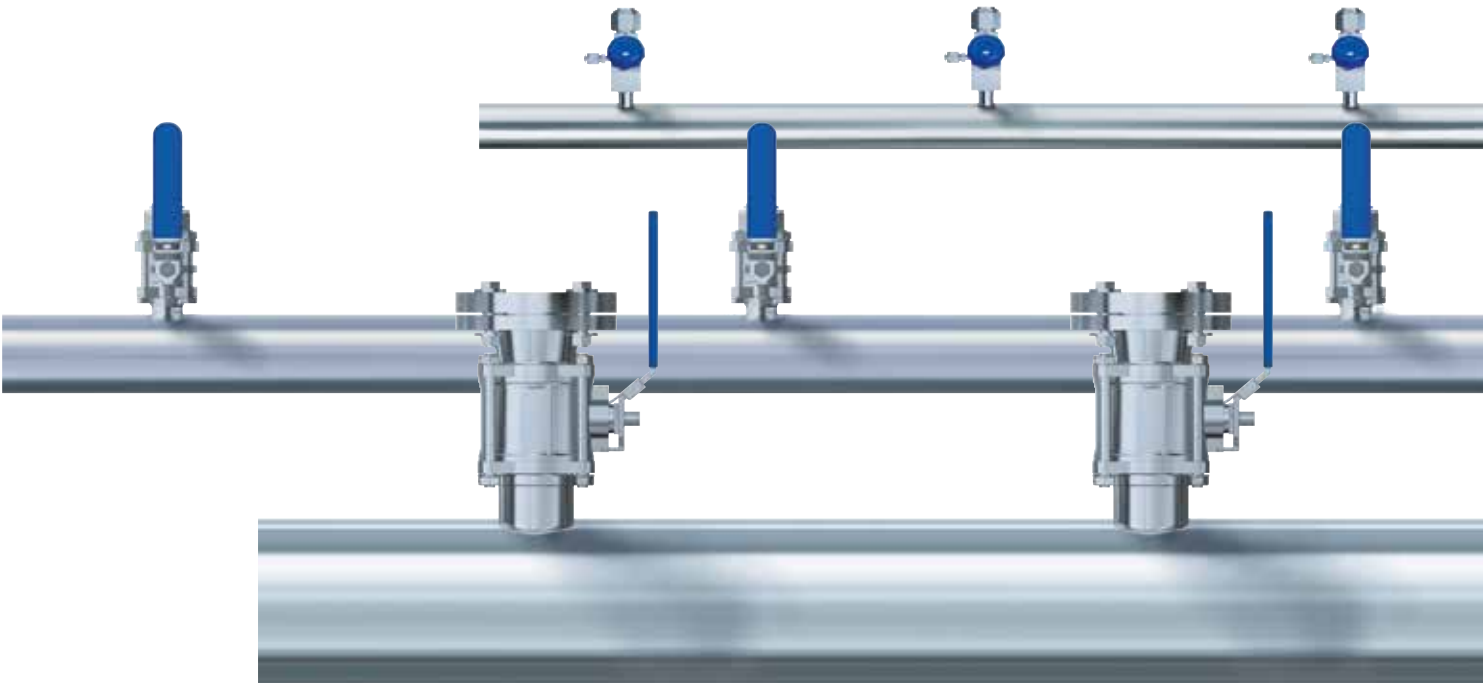
- Level Sensor 3**
- The level sensor is a signal generator that, together with a fill level indicator, reliably displays the residual amount of organometallic compound in the bubbler. Dockweiler offers an ultrasonic sensor for the bubbler, featuring specified switching points (90%, 70%, 30%, 10%) for signaling the fill level.
- Polarized Connectors 4**
- The standard design features male face seal for both connectors. To prevent confusion when connecting, Dockweiler offers male and female connectors.

TECHNICAL DATA

Application Areas HPL and ECO series for Fluids HPS for Solids	Materials 1.4404, 1.4435, UNS S31603 (316L), UNS N08367 (AL-6XN), UNS N08904 (904L), UNS N06022 (C22)
Volumes from 0,04 to 12,31 gal US (200 ml to 56 l)	Surface Options • Ra ≤ 16 µin and Ra ≤ 10 µin for electropolished version • bright finished, anodical cleaned, electropolished

PREFABRICATED LATERALS

Manifolds for utility lines are designed to simplify UHP, CFOS and PCW installations. UHP Manifolds are necked out and then welded, tested and packaged in an ISO 4 / Class 10 cleanroom. The use of prefabricated manifolds reduces the overall installation and acceptance process of the system through faster purge time and reduced particle count.



LATERAL

Maximum length 24 ft. / 7.3 m
Welding • SEMI F78-0611 • SEMI F81-0611
Tests / Documentation Leak test: 100% Helium Leak Tested to 1 x 10 ⁻⁹ scc / sec Weld Logs Material Certifications

TUBE

Material UNS S31603 (316L) / 1.4404 / 1.4435
Dimensions 1/2" up to 6" Further dimensions on request
Surface options Inner surface: ≤1" Ra 7 μin; Ra _{max} 10 μin >1" Ra ≤ 7 μin and 5 μin on request Inner surface: ≤1" Ra 16 μin; Ra _{max} 19 μin >1" Ra 30 μin; Ra _{max} 36 μin

VALVES

Type Diaphragm valve or equivalent valves. Multiple configurations available.
Dimensions 1/4" up to 1"
Handle color White (standard); color handles are available Air operated valves available upon request



Dockweiler USA Inc.

4800 SW Meadows Road, Ste 300,
Lake Oswego, OR
97035, USA

✉ sales.us@dockweiler.com

www.dockweiler.com



SALES PARTNERS ALL OVER THE US

SemiTorr Group LLC**Hillsboro, OR**

7175 NE Evergreen Pkwy #200,
Hillsboro, OR 97124, USA
Phone: 503-682-7052

Lehi, UT

4000 N Flash Dr, Lehi,
UT 84043, USA
Phone: 877-318-9275

Denver, CO

700 W 48th Ave ste a, Denver,
CO 80216, USA
Phone: 877-409-8590

Chandler, AZ

1710 E Germann Rd ste 8,
Chandler, AZ 85286, USA
Phone: 480-339-8025

Albuquerque, NM

8325 Washington St NE, Albuquerque,
NM 87113, USA
Phone: 505-797-4478

Clifton Park, NY

14 Fairchild Square, Clifton Park,
NY 12065, USA
Phone: 518-250-5692

Allentown, PA

7036 Snowdrift Rd #105, Allentown,
PA 18106, USA
Phone: 888-777-3001

Dallas, TX

13438 Floyd Cir, Dallas,
TX 75243, USA

Austin, TX

15825 Impact Way bldg 1 ste 150,
Pflugerville, TX 78660, USA
Phone: 737-255-9515

Manassas, VA

10684 Wakeman Ct, Manassas,
VA 20110, USA
Phone: 888-777-3001

Santa Clara Windustrial**Santa Clara CA**

1525 Walsh Ave, Santa Clara
CA 95050, USA
Phone: 408-727-1711